ON SCENE

THE NATIONAL MARITIME SAR REVIEW

DEPARTMENT OF TRANSPORTATION
U.S. COAST GUARD Issue No. 2-3-81

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WHERE TO GET A DIVER

The International Association of Dive Rescue Specialists is an organization of water rescue and recovery professionals. The home office, located in Fort Collins, Colorado, maintains a "HELP LINE" which can provide the names of member divers that might be located in your area of responsibility. The "HELP LINE" number is 303-482-0887. This is not exclusively an emergency number. You can call the "HELP LINE" now to check what local Diving Team menbers may be available to you in the event of an emergency.

COVER MISTAKE

The cover of the last issue of ON SCENE 1-81 was incorrectly numbered 5/6-80. The purple cover should be corrected to read 1-81, to avoid any future confusion.

ON SCENE is a SAR publication published by the Commandant, U. S. Coast Guard as a source of information concerning current and proposed procedures as well as new developments in SAR. Articles contained herein are non-record and non-directive.

WORLDWIDE NAVIGATIONAL WARNING SYSTEM (WWNWS)

What is a NAVAREA warning and how is it used for SAR? A recent meeting of an IMCO sub-committee recommended that one of the actions to take during the Uncertainty phase for ships or other craft is to send a NAVAREA warning through the appropriate NAVAREA coordinator requesting ships to keep a look-out by all means available for missing or seriously overdue ships or other craft.

THE WWNWS

All SAR personnel should become familiar with the World-Wide Navigational Warning Service adopted by IMCO in 1980. Details on the system are contained in Defense Mapping Agency Hydrographic/Topographic Center (DMAHTC) publication 117 - Radio Navigational Aids, Chapter 4 which should be read by all SAR personnel concerned with location of overdue craft.

The accompanying chart shows the designated warning areas. Each area has an area coordinator and each country will have a national coordinator.

The United States is participating as Area Coordinator for NAVAREA IV and NAVAREA XII. DMAHTC acts as the Area Coordinator within the United States and the Coast Guard acts as the National Coordinator. The area coordinator is responsible for issuing warnings and bulletins to cover the whole of the area. The national coordinator is responsible for issuing coastal warnings.

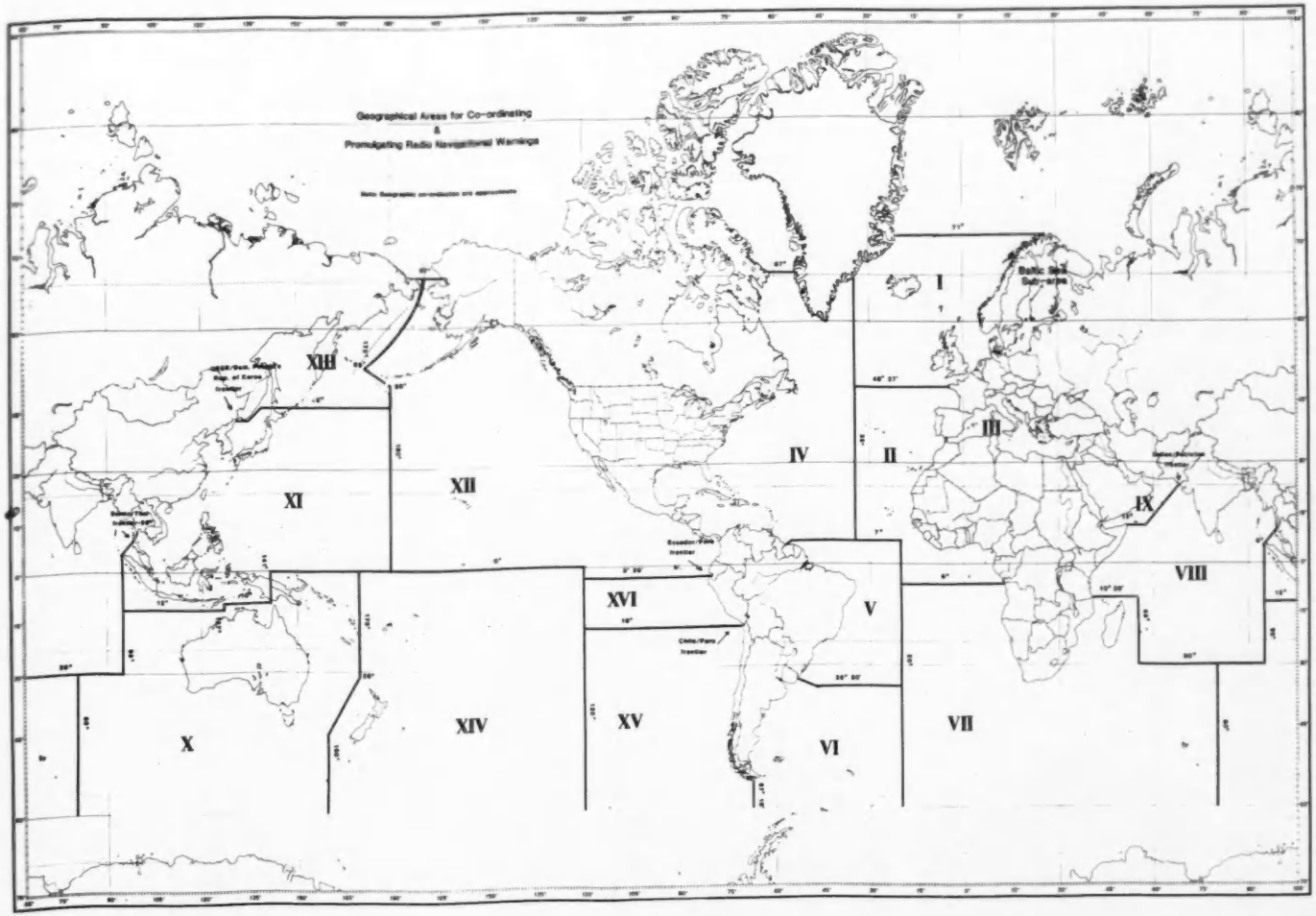
SAR USE OF THE SYSTEM TO DATE

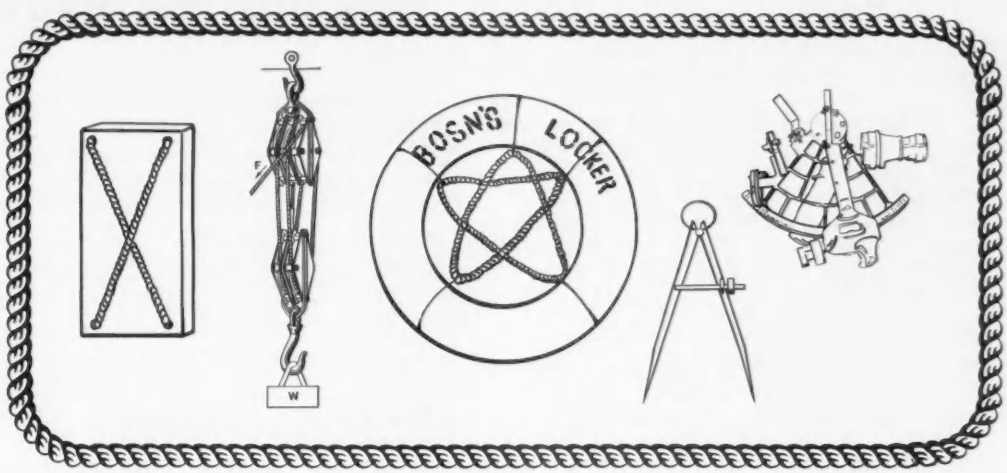
When it is desired to alert ships in NAVAREAS IV or XII other than coastal DMHATC should be requested to send a NAVAREA IV or XII warning respectively. When it is desired to alert ships outside of NAVAREA IV or XII DMHATC will, upon request issue a HYDROLANT or a HYDROPAC as appropriate. Consult DMHATC 117 for details. SAR personnel should be alert for any changes to these recommended procedures issued by Notice to Mariners or by revisions of the publication. Coastal alerts and warnings are issued in accordance with Coast Guard directives.

SAR Coordinators should consider whether revisions should be made to their Quick Response Sheets or SAR Mission Check off Lists as a result of this new system and the IMCO Sub-Committee recommendation mentioned at the beginning of this article.

AREA COORDINATORS FOR NAVIGATIONAL WARNING AREAS

AREA	COORDINATOR
I	United Kingdom
II	France
III	Spain
IV	United States
V	Brazil
VI	Argentina
VII	South Africa
VIII	India
IX	Pakistan
X	Australia
XI	Japan
XII	United States
XIII	USSR
XIV	New Zealand
XV	Chile
XVI	Peru


Geographical Areas for Co-ordinating
&
Promulgating Radio Navigational Warnings
Note: Geographic co-ordinates are approximate
I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII
XIII
XIV
XV
XVI



THE ROAD TOWARD A STANDARDIZED BOAT CREW TRAINING AND CERTIFICATION PROGRAM

Coast Guard small boat operators have traditionally done a great job and have earned recognition for their life saving feats. Enhancement and continuation of this professionalism is a goal of the Commandant; however, the missing principal ingredient has been a standardized boat crew training and certification process. The Boat Crew Training Guide (CG-313) has provided some measure of assistance. It lists the tasks a crewmember is to perform to qualify for each position on a Coast Guard small boat. The problem with CG-313 is that it does not set standards of how well each task is to be performed. A wide variety of interpretation has resulted as to what CG-313 actually requires. That is to say, although most everyone knows what a trainee has to do, numerous ways of teaching the trainee how to do it evolved. In short, no standards exist. This places an undue responsibility on each station and an added burden on each member. Transfers to a new unit often require requalifying to individualized and different criteria than what was required at their previous stations.

The Offices of Operations; Boating, Public & Consumer Affairs;and Reserve have combined their efforts to produce a servicewide standard program for the training and certification of Coast Guard boat crew members. The program is being designed to provide a level of qualification adequate to prepare all boat crew members for their missions. It will also establish a standard that will be acceptable from station to station. That is to say, if you qualify at one station you will be qualified at any other station after passing a local area knowledge check, as a minimum. This program, which will apply to regular personnel, reservists and auxiliarists performing operational missions under orders, has drawn heavily from successful programs already in use at many of our commands.

These programs were carefully examined and their strong points extracted and placed with the others.

The program will consist of several parts. The foundation will be a BOAT CREW SEAMANSHIP MANUAL which will be the primary reference for training. It will incorporate the knowledge requirements in one source book. THE BOAT CREW QUALIFICATION GUIDE (the old CG-313) has been revised to track closely with the SEAMANSHIP MANUAL . Its building blocks include the tasks of the older edition, and the conditions and standards for performing those tasks. This will mean that the method of evaluating the minimum level of performance will be the same at every station. (NOTE: The CO/OinC will always have the option of requiring higher standards) A BOAT CREW STUDY GUIDE is also being developed for individual preparation and use. This guide is designed to be a self-paced, self-study program with lessons in each of the primary knowledge areas.

With the knowledge portions mastered, the following steps will be required for the qualification and certification needed to crew or operate Coast Guard Boats:

1. The trainee will be required to demonstrate, under various conditions the ability to perform each task to a minimum level of competence. This is the heart of the program and it requires extensive hands-on, on-the-job training under the supervision of a qualified coxswain.

2. When the tasks are completed satisfactorily, the trainee will undergo evaluation by a local examining board of qualified coxswains which will include an underway check-ride.

3. Upon completion of the check-ride the examining board will submit their recomendations to the CO/OinC who gives the final certification.

This program will be available by the middle of 1981. And in the course of time all boat coxswains/crews will have been qualified through its implementation. In many instances it will take longer to qualify than now, but, after going through the program, one should be better qualified and feel more secure in knowledge and skills in mission performance. We are confident that this is an excellent program which small boat operators will appreciate. At last, you will have a servicewide standard with which to work. With this program, it will be easier to evaluate the abilities of our boat crews and better determine readiness to perform missions. This program was designed for you; you have a vested interest in making it work. Once you receive it, we solicit your comments, recommendations and suggestions to make it better. Headquarters point of contact is LCDR LEE CROSSMAN and CWO E.E. WOODARD in G-OSR-1, FTS 426-1896.

DISTRESS COMMUNICATIONS TRAINING TAPES

Have you ever been surprised by the difference between the training environment and the real world? Well here is your chance to provide some real life examples for training. The RM A School at TRACEN Petaluma is building a library of cassette tapes of actual distress communications. The tapes are used in training labs on distress and voice communications.

The RM A School will provide you with a blank cassette to record on if you need one. For more information, or to send in a tape, contact:

Officer in Charge
Radioman A School
U. S. Coast Guard Training Center
Petaluma, CA 94952

SARSAT UPDATE

This is a re-issue of an article run in ON SCENE 1-80, with some modifications which have been made since then. The project, centered at NASA Goddard Space Flight Center, Greenbelt, Maryland, is being directed by a Program Steering Group made up of members from NASA, Department of Transportation (Coast Guard, Department of Defense (Air Force) and the National Oceanic and Atomspheric Adminstration (NOAA). An international flavor has been added with direct participation by Canada and France and a link-up with a somewhat similar effort in the Soviet Union. Norway is also expected to participate.

KEY ELEMENTS OF THE SYSTEM (See Figure 1)

Key elements of the system are:

1. Existing ELT/EPIRBs on 121.5/243 MHz.

2. An experimental ELT/EPIRB operating in the 406 to 406.1 MHz frequency band which was allocated for low power ELT/EPIRB -to-spacecraft communications by the World Administration Radio Conference 1971.

3. A satellite-borne repeater for both the existing and experimental ELT/EPIRB bands (121.5, 243, 406 MHz) which, in conjunction with a local user terminal (LUT), will afford regional coverage for alerting and position determination. This repeater will take the incoming signals from existing ELT/EPIRBs and the experimental 406 MHz device and send them directly back to any terminal within range.

4. Local User Terminals (LUTs) to receive the signals from the repeater described in 3 and process it for position information, using doppler information.

5. A satellite-borne receiver and preprocessor for the experimental 406 MHz ELT/EPIRB which will afford full-orbit coverage for alerting and position determination. This device will take signals from the experimental ELT/EPIRB anywhere in the world, pre-process them and store the information until it is dumped to the controlling ground station.

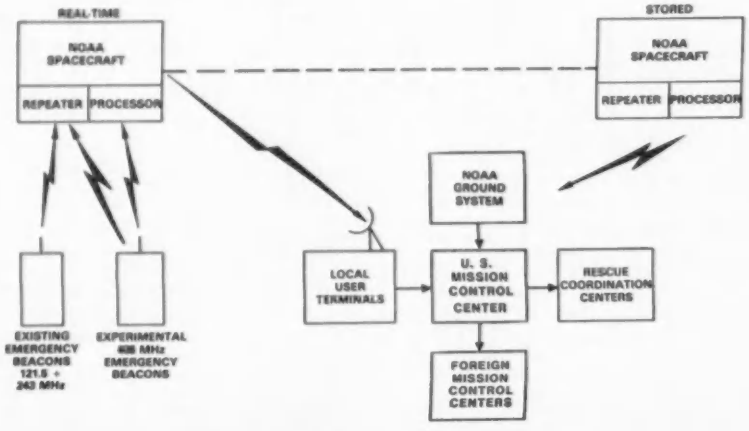


FIGURE 1 SARSAT SYSTEM

6. Spacecraft of the NOAA TIROS-N series which will carry the three-band repeater and the 406 MHz receiver/ processor.

7. Mission Control Centers (MCCs) in the U.S., Canada, France, USSR and Norway for coordinating the flow of data.

8. The NOAA ground system which will provide spacecraft ephemeris data for LUT use and receive stored data from 406 MHz ELT/EPIRBs.

THE LOCAL COVERAGE

Local coverage is when a LUT receives an ELT/EPIRB, signal directly from the spacecraft. To do this, the ELT/EPIRB, spacecraft, and LUT must be in mutual visibility for at least 4 minutes. Using doppler information, the LUT calculates the ELT/EPIRB position. The alert and the position are forwarded to the US Mission Control Center which passes it to the USAF RCC, Scott AFB; COMLANTAREA RCC, New York, COMPACAREA RCC, San Francisco: Elmindorf RCC, Anchorage; or the Canadian MCC. During the search phase, the 121.5/243 MHz emissions from the ELT/EPIRB can be used for homing.

FULL EARTH COVERAGE

Full earth coverage can only be achieved with the experimental 406 MHz ELT/EPIRB. The device transmits a relatively strong (about 5 watts) signal which lasts about 1/2 second and is repeated about every 50 seconds. The signal includes an identification of the craft in trouble and may also show the kind of trouble. The received signal is preprocessed on board the satellite; then the information is stored. When the satellite next passes over the NOAA Command and Data Acquistion (CDA) station, the information is dumped and sent to the USMCC to compute the ELT/ EPIRB position. During the demonstration phase of the project, no actual cases will be expected since no one will be carrying the 406 MHz ELT/EPIRB operationally. However, experimental units will be operated during planned tests in order to try the concept for possible future use.

GROUND COVERAGE CONTOUR WITH FOUR EARTH TERMINALS

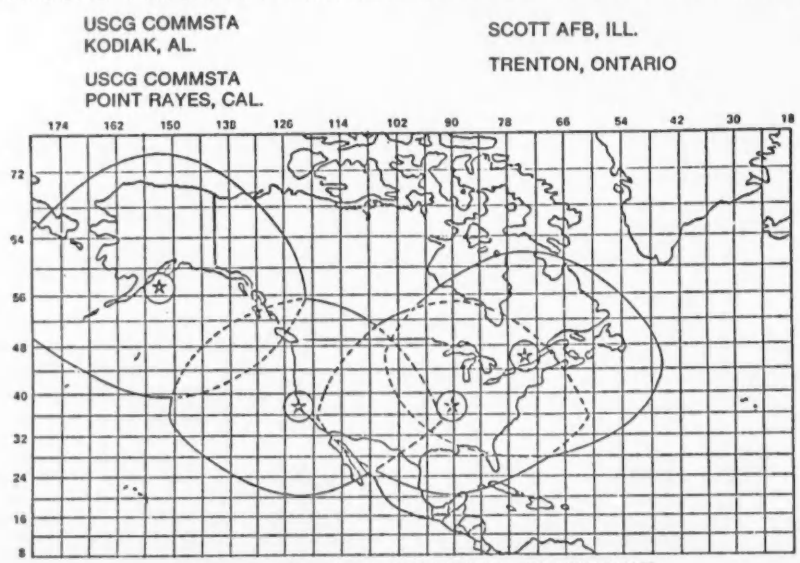


FIGURE 2 GROUND COVERAGE CONTOUR FOR U.S. AND CANADIAN LUT's

LOCAL COVERAGE AREAS

LUTs will be located at Kodiak, Alaska; Points Reyes, California; Scott AFB, Illinois; Ottawa, Ontario, Canada; and Toulouse, France. Figures 2 and 3 are coverage diagrams for these locations. The Mission Control Center for the United States will be located at Scott AFB.

USSR SYSTEM

The SARSAT partners -- the U.S., Canada, and France -- have been working closely with agencies of the Soviet Union who are planning a somewhat similar system called COSPAS. The objective is to make it possible for each system to use the other. This would double the number of useful satellites during the demonstration phase. Every satellite added to the galaxy decreases the waiting time for the local coverage system and gives a broader base on which to judge the need to proceed with an operational system later on.

TIME FRAME

The first launch will take place sometime in the early part of CY 1982. A firm date cannot be planned because the host weather satellites are called up as they are needed for meterological reasons. However, by the end of CY 1982 at least, we should have some idea of if, and how well, the system works.

CHANGES AND PROBLEM AREA

In our previous article, (ON SCENE 1-80) we showed that for local coverage, information would be forwarded directly from an LUT to an RCC. Note that this has been changed in the local coverage mode, and that all contacts by LUTs in North America will be processed through the U.S. MCC before being sent to the appropriate one of four RCCs or the Canadian MCC.

A problem area exists which needs to be dealt with during the demonstration phase. The problem is that each single pass of a satellite in the area of an

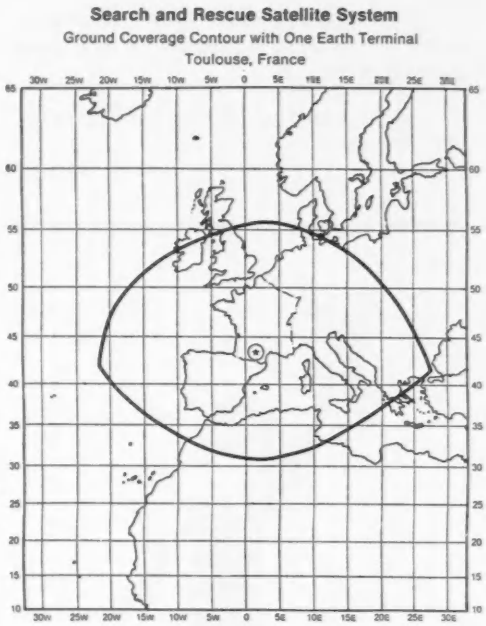


FIGURE 3 GROUND COVERAGE CONTOUR FOR FRENCH LUT

ELT/EPIRB will result in two positions, a real one and an image, on a perpendicular to the satellite's path projected on the earth's surface and equi-distant from that path. This means that an RCC receiving a report from the SARSAT MCC will not know immediately whether the report in his area is the real one or the image. If it receives both, it will not know immediately which is the real one. This could be particularly troublesome in maritime areas since it means that the maritime RCCs will be receiving a significant number of images of those ELTs going off over land. A strategy for dealing with this problem is one of the procedural matters which the demonstration phase should resolve.

Resolution of the real position will be obtainable by:

1. A second pass of the same satellite providing an identical position; or

2. A pass by another satellite providing an indentical position: or

3. Reports from overflying aircraft of hearing a signal in the same general area; or

4. Location of the unit setting off the device.

Additional methods of resolution are being explored.

From a SAR operation viewpoint it will be important that the impact of the above problem be determined during the demonstration phase.

Hats Off To 7th DISTRICT AUXILIARY

for support of

CUBAN REFUGEE OPERATIONS

Overlooked in our recent "HATS OFF" to the 7th Coast Guard District for the Cuban refugee operation was the outstanding work of the Coast Guard Auxiliary during the period. Auxiliarists in the 7th District were honored for their activity with a Unit Commendation from the Commandant. The commendation was given for "exceptionally meritorious service, 31 May to 16 June 1980, while engaged in Operation Key Ring."

This operation in support of the Coast Guard during the Cuban sealift is unique in Auxiliary history. While Coast Guard forces were carrying out the Cuban refugee operation, Auxiliarists assumed major responsibility for search and rescue in the Keys. They established their own communications and operations centers and contributed 25,000 man hours to the task.

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